

WHAT IS CLAIMED IS:

1        1.        A lubricating system for a 4-cycle engine in which a side  
2        cover defining a first valve-operating chamber is bonded to one  
3        side of a crankcase defining a crank chamber which accommodates  
4        a crank portion of a crankshaft; a head cover defining a second  
5        valve-operating chamber leading to the first valve-operating  
6        chamber is bonded to a head portion of a cylinder block connected  
7        to the crankcase; and a valve-operating mechanism is accommodated  
8        in a region extending from the first valve-operating chamber to  
9        the second valve-operating chamber,

10               wherein oil reservoir chambers for storing a lubricating  
11        oil up to a level higher than a journal portion of the crankshaft  
12        are formed in the crankcase and the side cover to surround the  
13        crank chamber and the first valve-operating chamber; oil supply  
14        passages are provided in the crankshaft to permit a portion of  
15        each of the oil reservoir chambers below an oil surface therein  
16        to communicate with the crank chamber so that the oil passed through  
17        the oil supply passages can be scattered to produce an oil mist;  
18        the crank chamber is put into communication with the first  
19        valve-operating chamber through a one-way valve which is adapted  
20        to be opened only when the pressure in the crank chamber is raised;  
21        a recovery bore which opens into a bottom of the first valve-  
22        operating chamber or the second valve-operating chamber for  
23        recovering liquefied oil is put into communication with a portion  
24        of each of the oil reservoir chambers above the oil surface; and  
25        a breather chamber is put into communication with an upper portion  
26        of the second valve-operating chamber.

1        2.        A lubricating system for a 4-cycle engine according to claim  
2        1, wherein a check valve adapted to be opened upon a reduction  
3        in pressure in the crank chamber is incorporated in at least one  
4        of the oil supply passages.

1        3.        A lubricating system for a 4-cycle engine according to claim  
2        1, wherein the oil supply passages in the crankshaft are put into  
3        communication with a portion of each of the oil reservoir chambers  
4        below the oil surface through a bent communication passage having  
5        an intermediate portion disposed in a bent shape above the oil  
6        surface of each of the oil reservoir chambers.

1        4.        A lubricating system for a 4-cycle engine according to claim  
2        1, wherein a first oil reservoir chamber is formed in the crankcase  
3        to surround the crank chamber, and a second oil reservoir chamber  
4        is formed between the crankcase and the side cover bonded to one  
5        side of the crankcase to define the valve-operating chamber which  
6        accommodates the valve-operating mechanism; the first and second  
7        oil reservoir chambers being in communication with each other.

1        5.        A lubricating system for a 4-cycle engine according to claim  
2        4, wherein the crankcase is comprised of first and second case  
3        halves bonded at their bonded surfaces perpendicular to an axis  
4        of the crankshaft; said first oil reservoir chamber is formed by  
5        recesses formed in the bonded surfaces of the first and second  
6        case halves to surround the crank chamber; said second oil

7       reservoir chamber is formed by recesses formed in bonded surfaces  
8       of the second case half and the side cover bonded to an outer side  
9       of the second case half to surround the valve-operating chamber;  
10      and a through-bore permitting the communication between said first  
11      and second oil reservoir chambers is provided in the second case  
12      half.